New Estimates of the Ginzburg-Landau Order Parameter

SPEAKER: Ayman Kachmar, Lebanese University
TIME: 3:00pm - 4:00pm, Thursday, November 8, 2018
VENUE: Room 264, Geography Building, Zhongbei Campus, ECNU (华东师范大学中山北路校区，地理楼264室)
HOST: Xingbin Pan, East China Normal University

ABSTRACT

This talk addresses the celebrated Ginzburg-Landau model for type II superconductivity. The superconducting properties of a type II superconductor material are encapsulated by a complex-valued wave function, the Ginzburg-Landau order parameter, which minimizes the non-linear Ginzburg-Landau functional. After presenting a short background on the physical aspects of superconductivity, I will discuss a celebrated result by Sandier-Serfaty on the $L^4$-norm of the Ginzburg-Landau order parameter. I will terminate the talk by presenting my joint work with B. Helffer on estimating the $L^2$-norm of the Ginzburg-Landau order parameter.

BIOGRAPHY

Ayman Kachmar received his BS and MS in mathematics from the Lebanese University. In 2007, he received his Ph.D. degree in mathematics from the University of Paris-Sud. Since 2014, he has been appointed Professor of Mathematics at the Lebanese University. His research interests fall in the field of partial differential equations and mathematical physics.